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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/728,212	11/29/2000	John H. Jerman	A-70056/ENB	4420

7590

08/14/2002

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EXAMINER

RODRIGUEZ, ARMANDO

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 08/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/728,212

Applicant(s)

JERMAN ET AL. ✓

Examiner

Armando Rodriguez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14-22 and 26-34 is/are rejected.
- 7) ☒ Claim(s) 13 and 23-25 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6, 16.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear what signal applicant makes reference to.

Claim 12 recites the limitation "the signal" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 18 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear how two laser sources provide the same light.

Claims 31-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 31-34

Applicant claims a tunable laser, however no claim language within these claims describes how the laser system performs the tuning.

Regarding claim 34.

It is unclear how the collimating lens is capable of controlling the power of the laser system.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11,14,15,18,19 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lang et al (PN 5,771,252) in view of Akimoto et al (Micro electro mechanical systems (MEMS) and their photonic application, SPIE Proceedings) and Maeda (PN 6,018,535).

Regarding claims 1-11,14,18 and 19.

In figure 5 Lang et al illustrates an external cavity tunable laser having a source (10) for providing light, a diffractive element (12) position from the source to redirect the light at a distance, a reflective element (18A), having a rotational pivot point, positioned from the diffractive element by a distance to receive the light from the diffractive element, which redirects the light back to the diffractive element, where the diffractive element redirects the light from the reflective element to the source.

In the abstract Lang et al discloses the wavelength selected by rotational and translation movement of the reflector on the pivot point, where the path length of the external cavity is substantially identical to a numerical integer of half the wavelengths.

Lang et al does not disclose the micro-actuator for tuning the laser system to obtain different wavelengths.

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Akimoto et al discloses in the abstract the use of micro-electro mechanical systems (MEMS) technologies in tunable laser diodes.

Figures 5 and 14 Akimoto et al, illustrates an external cavity tunable laser, which involves electrostatic micro actuator and electrostatic comb drive actuator technologies coupled to a micro-mirror to obtain a tunable laser system.

In figure 15 Akimoto et al illustrates the wavelength tunable range of the laser system, which has a range that falls within 1520nm to 1560nm, and a precise wavelength control of 0.01nm.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to apply the MEMS technologies disclosed by Akimoto et al to the external cavity tunable laser of Lang et al because the combination will provide a compact laser system with precise and accurate tunable wavelength range.

Regarding claim 15.

The use of a Fabry-Perot laser source in a tunable external cavity laser system is well known in the laser art, as shown by Maeda in figure 1 element (1) and disclosed in column 5 lines 33-35.

Regarding claim 30.

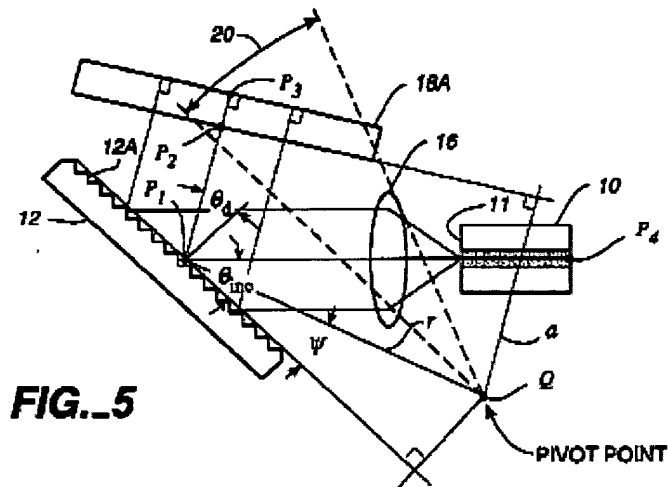
The use of an additional microactuator for translation involves routine skill in the art, since the insertion of an additional microactuator into the laser system is mere duplication of the MEMS technology.

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Jun. 23, 1998

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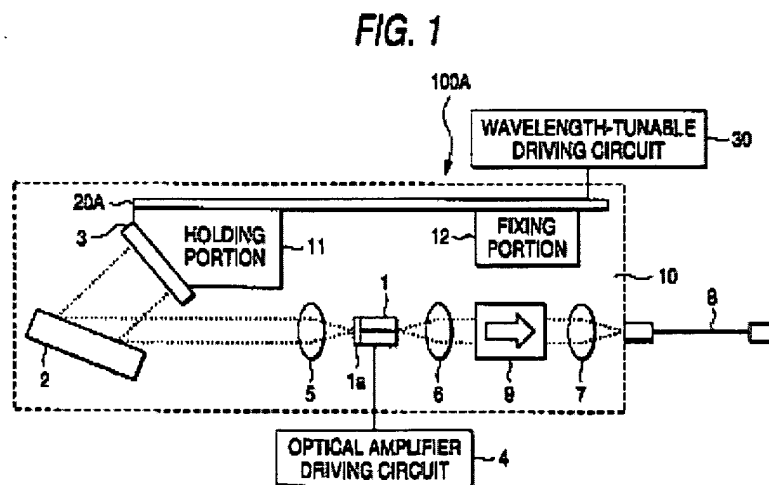


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Jan. 25, 2000

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6,018,535



Claims 16,17 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lang et al (PN 5,771,252) in view of Akimoto et al (Micro electro

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mechanical systems (MEMS) and their photonic application, SPIE Proceedings) as applied to claim 1 above, and further in view of Mattori et al (PN 6,081,539).

The use of sensors and detectors to obtain an error signal by monitoring a predetermined wavelength of a laser system and maintaining such wavelength via a feedback circuit is well known and commonly used in the laser art, as shown by the external cavity tunable laser system of Mattori et al illustrated in figure 1.

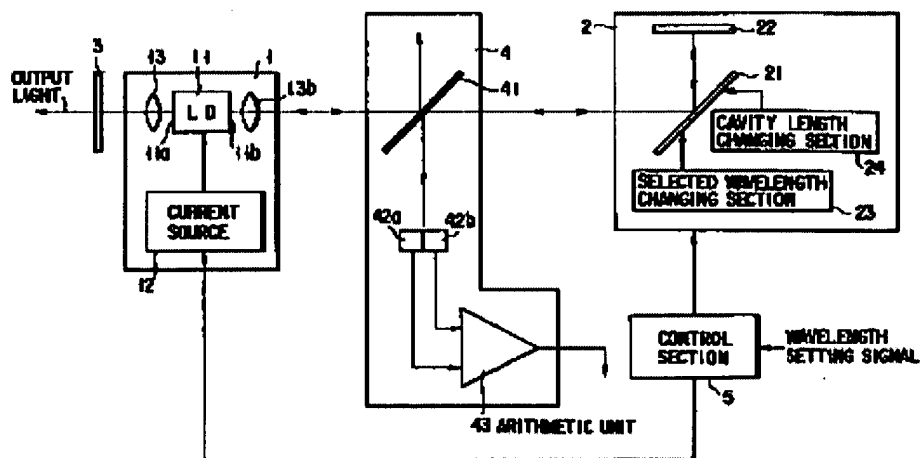
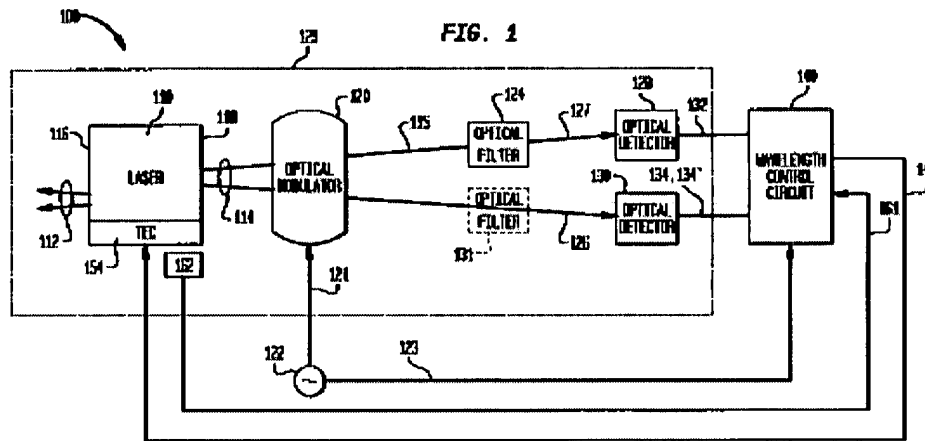


FIG. 1

U.S. Patent Jun. 27, 2000 Sheet 1 of 9 6,081,539

Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lang et al (PN 5,771,252) in view of Akimoto et al (Micro electro mechanical systems (MEMS) and their photonic application, SPIE Proceedings) as applied to claim 1 above, and further in view of Broutin et al (PN 6,198,757).

The use of electroabsorptive modulators (EML) in lasers for communication systems is well known in the laser art, as shown in figure 1 and disclosed in column 5 lines 6-11 of Broutin et al.



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Mar. 6, 2001

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US 6,198,757 B1

Allowable Subject Matter

Claims 13,23-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 13.

None of the prior arts alone or ~~X~~ⁱⁿ combination discloses the claimed tunable laser having the structural combination of independent claim 1 along with any intervening

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claims where the a counterbalance carried by the substrate and coupled to the microactuator for inhibiting undesirable movement.

Regarding claims 23-25.

None of the prior arts alone or I combination discloses the claimed tunable laser having the structural combination of independent claim 1 along with any intervening claims where an additional microactuator is coupled to the collimating lens for moving the collimating lens.

Claim 31 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Claim 34 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-3,5-7,10,11,14,15 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-35,7,9-12 of copending Application No. 09491429. Although the conflicting claims are not identical, they are not patentably distinct from each other because both application pertain to an external cavity tunable laser having a microactuator for tuning the laser system

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conflicting Claims

Application	Copending application
1	1
2	2
3	10
5	3
6	5
7	5
10	7
11	11
14	9
15	12



Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Armando Rodriguez whose telephone number is (703) 308-6218. The examiner can normally be reached on 10-hour day / M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-4881.


Armando Rodriguez
Examiner
Art Unit 2828

 **QUYEN LEUNG**
PRIMARY EXAMINER


Paul Ip
Supervisor
Art Unit 2828

AR/PI
August 10, 2002